

What is claimed is:

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as
1. A method for managing a marketing campaign, comprising:
- 5 Providing a data mining engine capable of being trained with training data and capable thereafter of performing inference relative to the training data and on future (new) data;
- Providing a user database defining the observed characteristics of each one of a set of users, the characteristics comprising at least one of: (a) at least one of the user's attributes, (b) at least one of the user's preferences;
- 10 training the data mining engine with a set of training data comprising the user data base;
- inputting to the data mining engine a predetermined characteristic pertaining to the marketing campaign and, in response thereto, obtaining from the data mining engine a subset of the users in the data base having the highest correlation to the characteristic.
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2. The method of Claim 1 wherein inputting comprises inputting a predetermined set of characteristics pertaining to the marketing campaign.
3. The method of Claim 2 wherein the predetermined set of characteristics
- 20 comprise a predetermined set of user attributes.
4. The method of Claim 3 wherein the predetermined set of uses attributes

constitute user attributes likely to pertain to a product to which the marketing campaign is directed.

5            5.        The method of Claim 4 further comprising:  
                 determining in the data mining engine a set of prevalent attributes of the  
                 subset of users;  
                 defining a target data base of users and determining in the data mining  
                 engine a target subset of users in the target data base statistically correlated to the set of  
                 prevalent attributes.

10           6.        The method of Claim 5 wherein the target data base comprises the user data  
                 base with which the data mining engine has been trained.

15           7.        The method of Claim 5 wherein the target data base comprises an additional  
                 data base not included in the user data base, the additional data base defining characteristics  
                 of a set of new users.

20           8.        The method of Claim 5 further comprising:  
                 conducting a marketing campaign cycle directed at the target subset of users;  
                 observing responses of the target subset of users to the marketing campaign  
                 cycle.

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9. The method of Claim 8 further comprising:  
forming a focused group of the target subset of users whose observed  
response was a particular type of response;  
determining, in the data mining engine, a group of prevalent characteristics  
of the focused group of users;  
defining a data base to be mined and determining, in the data mining engine,  
a new set of users in the data base to be mined whose characteristics are statistically  
correlated with the group of prevalent characteristics.

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10. The method of Claim 9 wherein the data base to be mined comprises the  
user data base with which the data mining engine was trained.

11. The method of Claim 9 wherein the data base to be mined comprises the  
target data base of users.

12. The method of Claim 9 wherein the data base to be mined comprises a new  
data base not included in either the user data base nor in the target user data base.

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13. The method of Claim 9 further comprising:  
directing a subsequent marketing campaign cycle to the new set of users.

14. The method of Claim 1 wherein the predetermined characteristic comprises

one of: (a) a user attribute, (b) a user preference.

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Sub C1 15. The method of Claim 14 wherein the user preference corresponds to a prior purchase of a product which is a subject of the marketing campaign.

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Sub D1 16. The method of Claim 1 further comprising:  
determining, in the data mining engine, a complete set of statistically prevalent user attributes of the subset of users;  
for any member of the subset of users having certain attributes which are  
10 undetermined in the user data base, filling in the certain undetermined attributes with the corresponding ones of the complete set of statistically prevalent user attributes of the subset of users.

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Sub C2 17. The method of Claim 5 further comprising:  
15 for any member of the target subset of users having certain attributes which are undetermined, filling in the certain undetermined attributes with the corresponding ones of the set of prevalent user attributes of the subset of users.

20 18. The method of Claim 1 wherein obtaining from the data mining engine a subset of the users in the data base having the highest correlation to the characteristic comprises:

clustering the user data base into different segments of users distinguished

by different states of a variable;

determining which of the segments has the highest statistical correlation to the characteristic.

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The method of Claim 18 wherein clustering comprises:

providing with a visualization tool a tabulation of characteristics of each

cluster with the probability of each characteristic in the cluster;

labeling each cluster with a statistically predominant characteristic thereof in

accordance with the tabulation.

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The method of Claim 19 wherein the statistically predominant characteristic

of each cluster distinguishes the cluster from the other clusters.

21.

A method of personalizing marketing resources, comprising:

providing a data mining engine capable of being trained with training data

and capable thereafter of performing inferencing relative to the training data;

providing a user data base correlating observed characteristics of each one of

a set of users with a set of adaptable marketing features, the characteristics comprising at

least one of: (a) at least one of the user's attributes, (b) at least one of the user's preferences;

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training the data mining engine with a set of training data comprising the

user data base;

inputting to the data mining engine a set of user attributes of one of: (a) a

particular user, (b) a particular group of users, and, in response thereto, obtaining from the data mining engine a subset of the adaptable marketing features having the highest correlation to the set of user attributes.

5 22. The method of Claim 21 further comprising:  
Sub 1 constructing a presentation to be directed to the particular user or group of users comprising marketing features contained within the subset of marketing features.

10 23. The method of Claim 21 wherein the marketing features comprise a set of different advertisements.

24. The method of Claim 23 wherein the marketing features comprise a set of different products which can be marketed at a common site.

15 25. The method of Claim 21 wherein the marketing features comprise a set of different potential features of a storefront.

20 26. The method of Claim 21 wherein the marketing features comprise a set of different potential features of a catalog.

27. The method of Claim 21 wherein the marketing features comprise a set of different potential features of a shopping experience.

28. The method of Claim 21 wherein the marketing features comprise a set of different potential features of a direct mailing.

29. The method of Claim 21 wherein the marketing features comprise a set of different potential features of a promotion.

30. The method of Claim 21 wherein:  
the data mining engine clusters the users in the data base into segments of users with similar characteristics;  
in response to the input, the data mining engine determines which of the segments has characteristics statistically correlated with the set of user attributes; and  
the subset of marketing features is determined based upon the preferences of the segments statistically correlated to the set of user attributes.

31. A method of controlling the marketing resources of a site having a real-time user interface during a visit to the site by a particular user, comprising:

providing a data mining engine capable of being trained with training data and capable thereafter of performing inferencing relative to the training data;

providing a user data base correlating observed characteristics of each one of a set of users with a set of adaptable marketing features, the characteristics comprising at least one of: (a) user attributes, (b) user preferences;

training the data mining engine with a set of training data comprising the

user data base;

inputting to the data mining engine a set of user attributes of the particular

user and, in response thereto, obtaining from the data mining engine a subset of the

5 adaptable marketing features having the highest correlation to the set of user attributes.

32. The method of Claim 31 further comprising:

constructing a presentation to be directed to the particular user comprising  
marketing features contained within the subset of marketing features.

33. The method of Claim 31 wherein the marketing features comprise a set of  
different advertisements.

34. The method of Claim 33 wherein the marketing features comprise a set of  
15 different products which can be marketed at a common site.

35. The method of Claim 31 wherein the marketing features comprise a set of  
different potential features of a storefront.

36. The method of Claim 31 wherein the marketing features comprise a set of  
20 different potential features of a catalog.



37. The method of Claim 31 wherein the marketing features comprise a set of different potential features of a shopping experience.

38. The method of Claim 31 wherein the marketing features comprise a set of  
5 different potential features of a direct mailing.

39. The method of Claim 31 wherein the marketing features comprise a set of different potential features of a promotion.

40. The method of Claim 31 wherein:  
the data mining engine clusters the users in the data base into segments of users with similar characteristics;  
in response to the input, the data mining engine determines which of the segments has characteristics statistically correlated with the set of user attributes; and  
15 the subset of marketing features is determined based upon the preferences of the segments statistically correlated to the set of user attributes.

41. The method of Claim 41 wherein inputting is preceded by determining the attributes of the particular user.

42. The method of Claim 41 wherein the particular user is a member of the user data base, and wherein determining comprises:

classifying the users in the user data base;

inputting the identity of the particular user to the inferencing engine.

43. The method of Claim 41 wherein the particular user is a member of the user  
5 database, and wherein determining comprises:

clustering the users in the user data base into different segments of users  
having similar characteristics relative to responses to different ones of the marketing  
features;

inputting the identity of the particular user to the inferencing engine.

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44. The method of Claim 41, wherein determining comprises:  
clustering the users in the user data base into different segments of users  
having similar characteristics relative to responses to different ones of the marketing  
features;

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observing characteristics of the particular user through the real-time user  
interface of the site;

assigning the particular user to at least one of the segments based upon the  
characteristics observed through the interface.

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45. The method of Claim 44 wherein some characteristics of the particular user  
are not observed through the interface, but have been previously determined by clustering  
for the segment to which the particular user is assigned, whereby the characteristics not

observed through the interface are filled in upon assignment of the particular user to a segment.

46. The method of Claim 32 further comprising:  
observing through the interface responses of the user to the presentation.

47. The method of Claim 46 further comprising:  
comparing a distribution of the observed responses across the marketing features of the presentation to corresponding distributions in different ones of the segments so as to detect any errors in the assignment of the particular user to a segment;  
correcting the assignment of the user to a different segment in response to the detection of an error.

48. The method of Claim 47 further comprising: based upon the corrected assignment of the user to a new segment, obtaining from the data mining engine a subset of the adaptable marketing features having the highest correlation to the set of user attributes.

49. The method of Claim 48 further comprising modifying the presentation based upon the latest subset of marketing features obtained from the data mining engine, whereby to increase the likelihood of a favorable response by the user.

50. The method of Claim 49 further comprising adding the user and an

identification of the user's assigned segment to the user data base.

51. A marketing management system, comprising:  
a data warehouse storing a user data base correlating individual users with  
5 observed characteristics comprising at least one of user attributes and user preferences and  
with observed responses to a set of marketing features;  
a profiler comprising a data mining engine constructed with training data  
comprising the user data base;  
a personalization system for tagging individual users with labels from which  
10 user characteristics may be inferred; and  
a personalized application component responsive to the profiler and to the  
personalization system and which correlates a user with a subset of the marketing features  
based upon the user's characteristics.

52. The marketing management system of Claim 51 wherein the subset of  
marketing features corresponds to a maximum probability of a favorable response by the  
user in accordance with the training data.

53. The marketing management system of Claim 51 wherein the personalized  
20 application component comprises:  
a real-time user interface with the user;  
a feedback component for capturing observed responses of the user through

the interface and feeding them to the data warehouse for processing by the data mining engine of the profiler.

54. A marketing management system, comprising:  
a data warehouse storing a user data base correlating individual users with observed characteristics comprising at least one of user attributes and user preferences;  
a profiler comprising a data mining engine constructed with training data comprising the user data base;  
a personalization system for tagging individual users with labels from which user characteristics may be inferred; and  
a marketing management console responsive to the profiler and to the personalization system and which correlates a set of user characteristics identified for a marketing campaign with a subset of the users in the user data base.

55. The marketing management system of Claim 51 wherein the subset of users corresponds to a maximum probability of favorable response to a marketing campaign directed toward the set of user characteristics in accordance with the training data.

56. The marketing management system of Claim 55 wherein the set of user characteristics were selected based upon a product which is to be marketed in the marketing campaign.

57. The marketing management system of Claim 56 further comprising:  
a feedback component for capturing observed responses to the marketing campaign and feeding them to the data warehouse for processing by the data mining engine of the profiler.

58. A machine-readable medium having instructions stored thereon for execution by a processor to perform a method comprising:

Providing a data mining engine capable of being trained with training data and capable thereafter of performing inference relative to the training data and on future  
10 (new) data;

Providing a user database defining the observed characteristics of each one of a set of users, the characteristics comprising at least one of: (a) at least one of the user's attributes, (b) at least one of the user's preferences;

training the data mining engine with a set of training data comprising the  
15 user data base;

inputting to the data mining engine a predetermined characteristic pertaining to the marketing campaign and, in response thereto, obtaining from the data mining engine a subset of the users in the data base having the highest correlation to the characteristic.

20 59. A machine-readable medium having instructions stored thereon for execution by a processor to perform a method comprising:

providing a data mining engine capable of being trained with training data

and capable thereafter of performing inferencing relative to the training data;

providing a user data base correlating observed characteristics of each one of a set of users with a set of adaptable marketing features, the characteristics comprising at least one of: (a) at least one of the user's attributes, (b) at least one of the user's preferences;

5 training the data mining engine with a set of training data comprising the user data base;

inputting to the data mining engine a set of user attributes of one of: (a) a particular user, (b) a particular group of users, and, in response thereto, obtaining from the data mining engine a subset of the adaptable marketing features having the highest  
10 correlation to the set of user attributes.

60. A machine-readable medium having instructions stored thereon for execution by a processor to perform a method comprising:

providing a data mining engine capable of being trained with training data  
15 and capable thereafter of performing inferencing relative to the training data;

providing a user data base correlating observed characteristics of each one of a set of users with a set of adaptable marketing features, the characteristics comprising at least one of: (a) user attributes, (b) user preferences;

20 training the data mining engine with a set of training data comprising the user data base;

inputting to the data mining engine a set of user attributes of the particular user and, in response thereto, obtaining from the data mining engine a subset of the

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adaptable marketing features having the highest correlation to the set of user attributes.

61. A method for managing a marketing campaign, comprising:  
providing a data mining engine capable of being trained with training data  
5 and capable thereafter of performing inferencing relative to the training data;  
providing a user data base correlating observed characteristics of each one of  
a set of users with a set of adaptable marketing features, the characteristics comprising at  
least one of: (a) at least one of the user's attributes, (b) at least one of the user's preferences;  
training the data mining engine with a set of training data comprising the  
10 user data base;  
first inputting to the data mining engine a predetermined characteristic  
pertaining to the marketing campaign and, in response thereto, obtaining from the data  
mining engine a subset of the users in the data base having the highest correlation to the  
characteristic; and  
15 second inputting to the data mining engine a set of user attributes of the  
subset of the users, and, in response thereto, obtaining from the data mining engine a subset  
of the adaptable marketing features having the highest correlation to the set of user  
attributes.

20 62. The method of Claim 61 further comprising:  
conducting a marketing campaign cycle directed toward the subset of users  
and comprising the subset of marketing features.



63. The method of Claim 62 further comprising:  
monitoring observed responses to the marketing campaign cycle and  
updating the user data base based upon the observed responses;  
5 repeating the first and second inputting to obtain an updated subset of users  
and an updated subset of marketing features.

64. The method of Claim 63 further comprising:  
conducting a subsequent marketing campaign cycles based upon the updated  
10 subsets of users and marketing features.

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